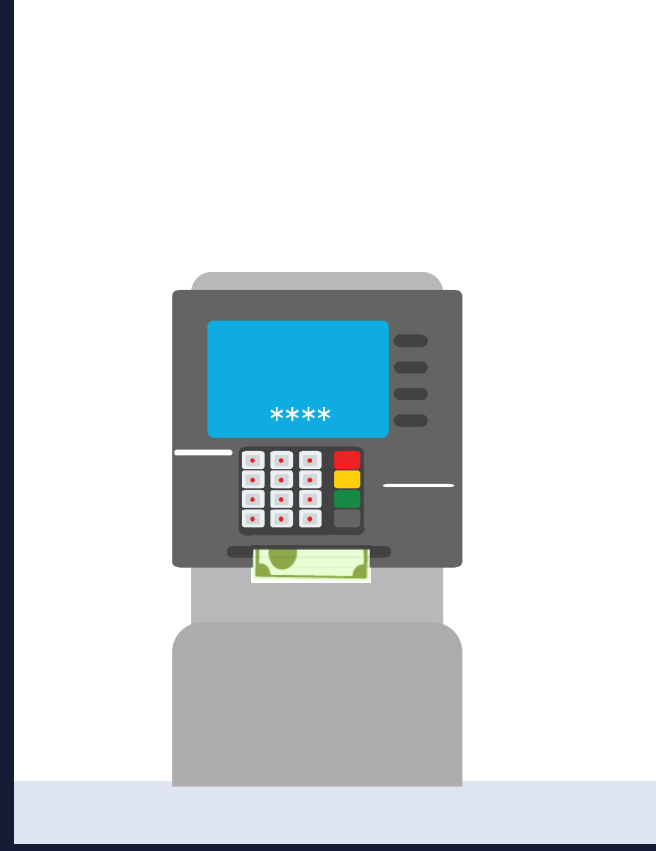
GET INTO PROGRAMMING WITH JavaScript

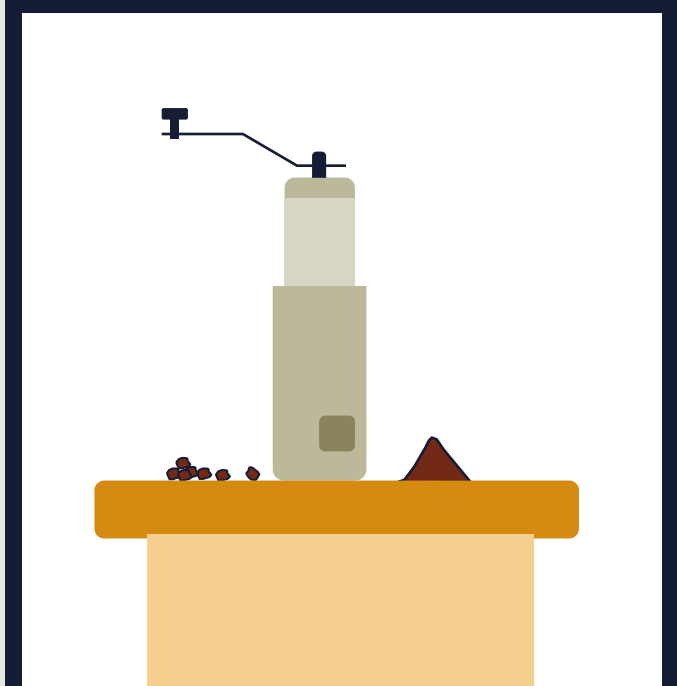
Axle Barr

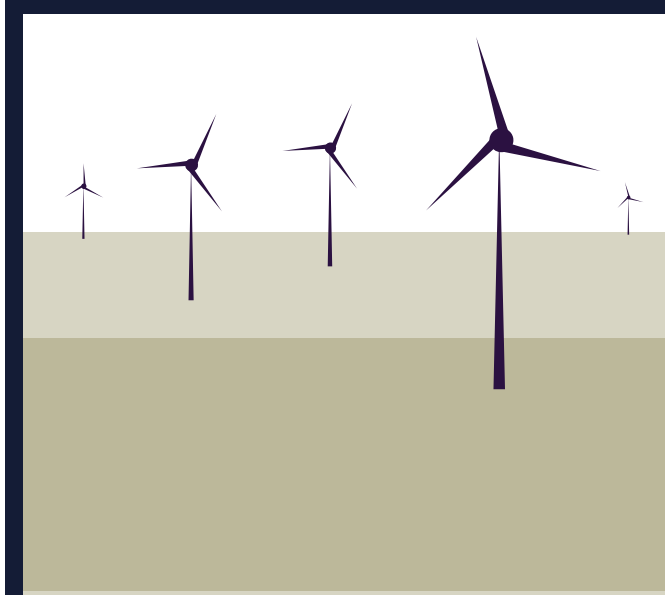
Repetition

In the real world, we:

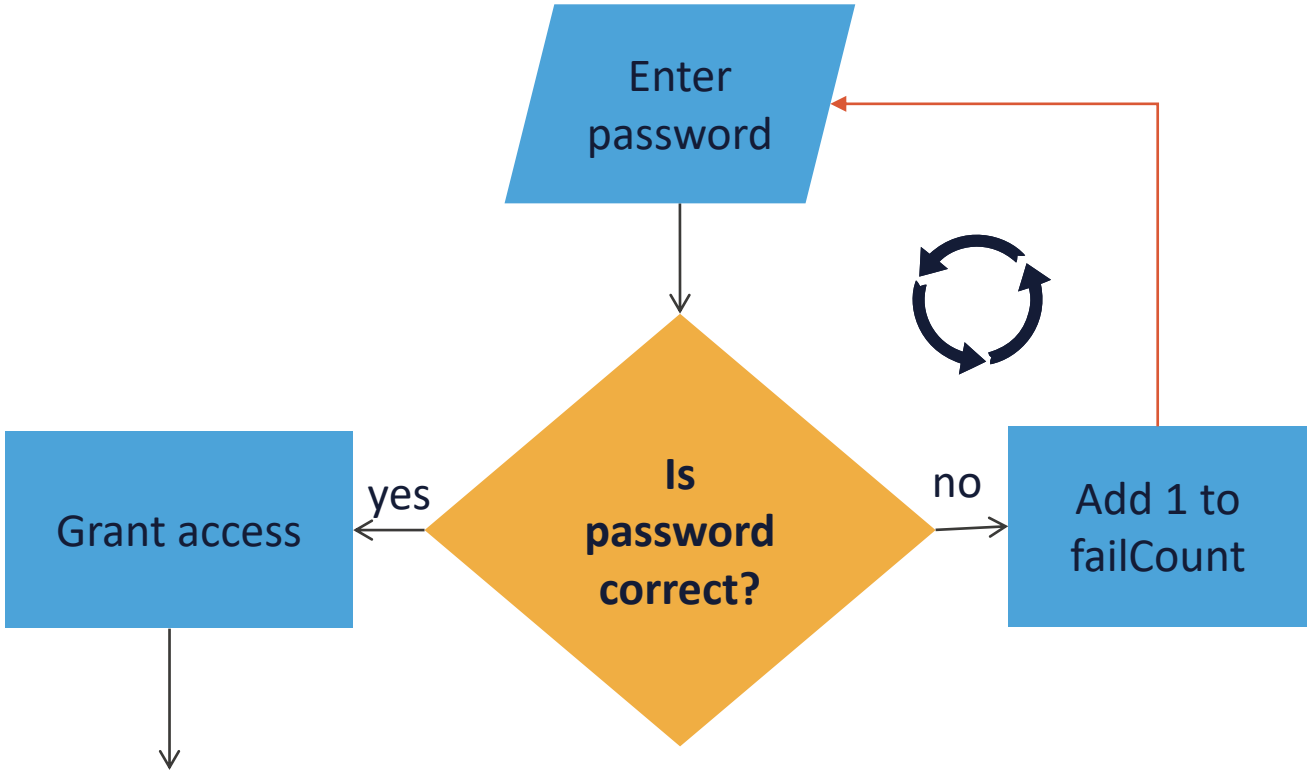
- Knock three times before someone answers the door
- Keep getting bills from the ATM util it completes the transaction
- Turn the coffee grinder until all the beans have been grounded
- See windmills turn until there is no wind







Flowchart for decisions



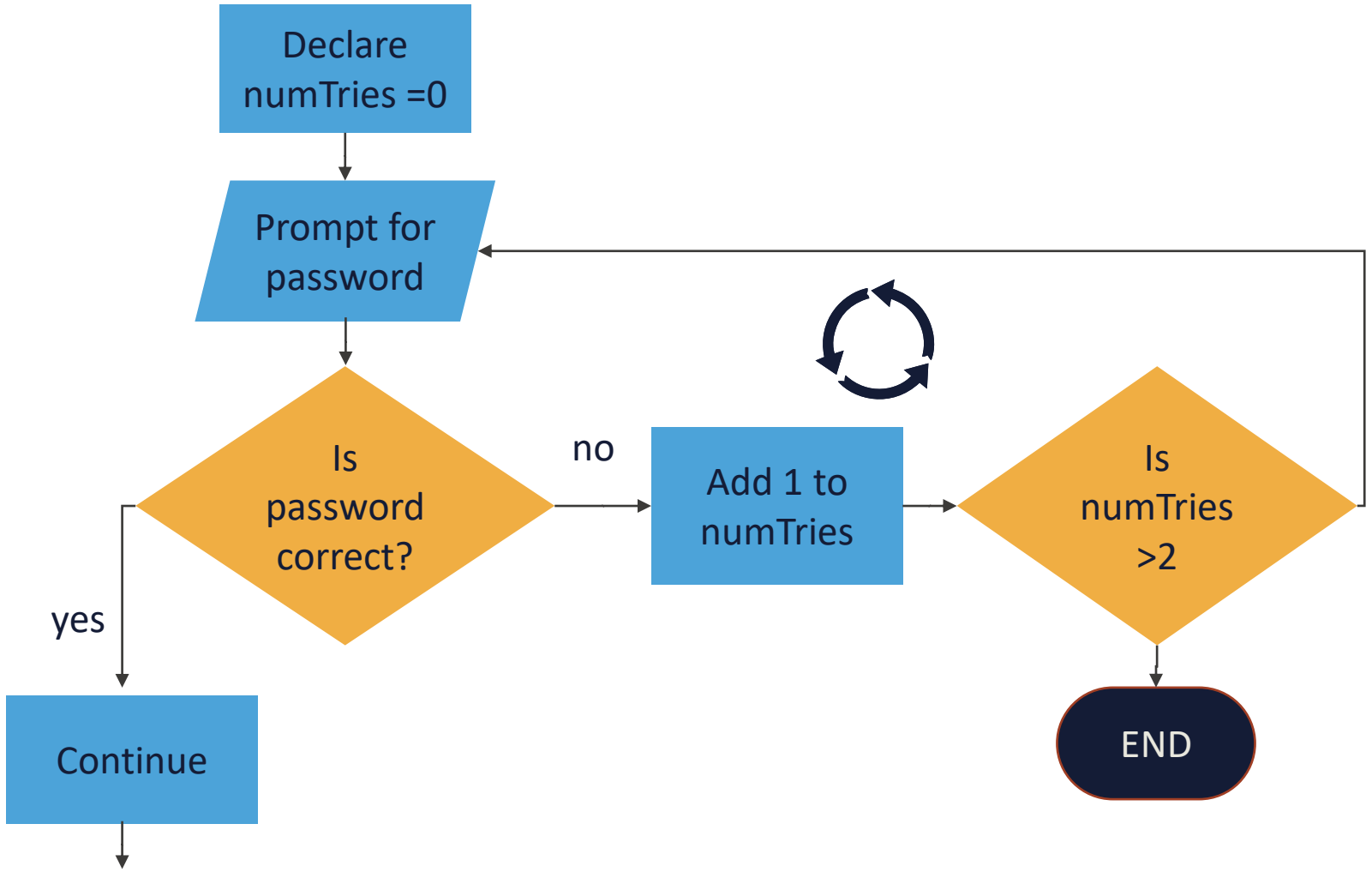
Diamonds are for Decisions

The diamond represents a decision or selection process. It represents some kind of change in the sequence of processing. There can only be two outcomes from a decision, a positive track or a negative track.

The diamond also helps us setup a loop.

We will discuss the switch statement later in the course.

Flowchart for entering password

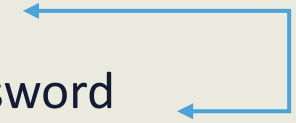


If three fails, program ends

Algorithm

Steps performed by machine:

Prompt user for password
Store password in *psswd*
While *psswd* is incorrect
    prompt user for password
End while
Continue with program
…



- **While *psswd* is incorrect** is the same as saying, “if the user continues to insert the wrong password” then we will continue to prompt the user for the correct password
- The End while statement is just to show a block of code within a looping structure.

1. prompt user for password
2. store password in *psswd*
3. declare *counter* = 0
4. while *counter* <= 2
5. check if *psswd* is correct
6. if *psswd* is incorrect
7. prompt user for password
8. add 1 to *counter*
9. end while
10. continue with rest of program…

psswd is correct

1. prompt user for password
2. store password in *psswd*
3. declare *counter* = 0
4. while *counter* <= 2
5. check if *psswd* is correct
6. if *psswd* is incorrect
7. prompt user for password
8. add 1 to *counter*
9. end while
10. continue with rest of program…

psswd is NOT correct

1. prompt user for password
2. store password in *psswd*
3. declare *counter* = 0
4. while *counter* <= 2
5. check if *psswd* is correct
6. if *psswd* is incorrect
7. prompt user for password
8. add 1 to *counter*
9. end while
10. continue with rest of program…

psswd is NOT correct

More Operators

Operators already seen:

=

>

<

=>

<=

+ - * /

Two more operators

== Equality Operator

!= Inequality Operator

“Axle” == “Axle”

“Axle” == “Axl”

9 == 9

“Axle” != “Axel”

Shopping Cart Loop

Here is a simple program that:

1. Asks for the price of a product
2. Changes that string into an integer
3. Calculates the final price after adding TAX
4. Prints the final price

```
TAX = 1.08
productCost = input("Enter price of product: ")
productCost = int(productCost)
finalPrice = productCost * TAX

print(finalPrice)
```

Shopping Cart Loop

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1. Asks for the price of a product
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```
TAX = 1.08
productCost = input("Enter price of product: ")
productCost = int(productCost)
finalPrice = productCost * TAX

print(finalPrice)

answer = input("Do you have another product: ")

If (answer == "yes"):
    productCost = input("Enter price of product: ")
    productCost = int(productCost)
    finalPrice = productCost * TAX
    print(finalPrice)
```

Shopping Cart Loop

Here is a simple program that:

1. Asks for the price of a product
2. Changes that string into a float data type
3. Calculates the final price after adding TAX
4. Prints the final price

```
const TAX = 1.08
        let productCost = prompt("Enter price of product: ");
        productCost = parseFloat(productCost);
        finalPrice = productCost * TAX;
printOut = finalPrice;
```

Shopping Cart Loop

Here is a simple program that:

1. Asks for the price of a product
2. Changes that string into a float data type
3. Calculates the final price after adding TAX
4. Prints the final price

```
const TAX = 1.08
let moreProducts = true;
while (moreProducts == true) {
        let productCost = prompt("Enter price of product: ");
        productCost = parseFloat(productCost);
        finalPrice = productCost * TAX;
}
printOut = finalPrice;
```

Shopping Cart Loop

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        productCost = parseFloat(productCost);
        finalPrice = productCost * TAX;
        moreProducts = false;
}
printOut = finalPrice;
```

Shopping Cart Loop

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while (moreProducts == true) {
        let productCost = prompt("Enter price of product: ");
        productCost = parseFloat(productCost);
        finalPrice = productCost * TAX;
        //moreProducts = false;
        let moreItems = confirm("Do you have more items?");
        if(moreItems == false){
                moreProducts = false;
        }
}
printOut = finalPrice;
```

Shopping Cart Loop

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while (moreProducts == true) {
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        productCost = parseFloat(productCost);
        finalPrice = productCost * TAX;
        //moreProducts = false;
        let moreItems = confirm("Do you have more items?");
        if(moreItems == false){
                moreProducts = false;
        } else {
                moreProducts = true;
        }
}
printOut = finalPrice;
```

Shopping Cart Loop

Here is a simple program that:

1. Asks for the price of a product
2. Changes that string into a float data type
3. Calculates the final price after adding TAX
4. Prints the final price

```
const TAX = 1.08
let moreProducts = true, total=0.0;
while (moreProducts == true) {
        let productCost = prompt("Enter price of product: ");
        productCost = parseFloat(productCost);
        finalPrice = productCost * TAX;
        total = total + finalPrice;
        let moreItems = confirm("Do you have more items?");
        if(moreItems == false){
                moreProducts = false;
        } else {
                moreProducts = true;
        }
}
printOut = total;
```

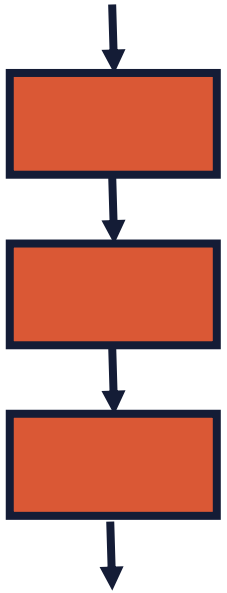
Shopping Cart Loop

Here is a simple program that:

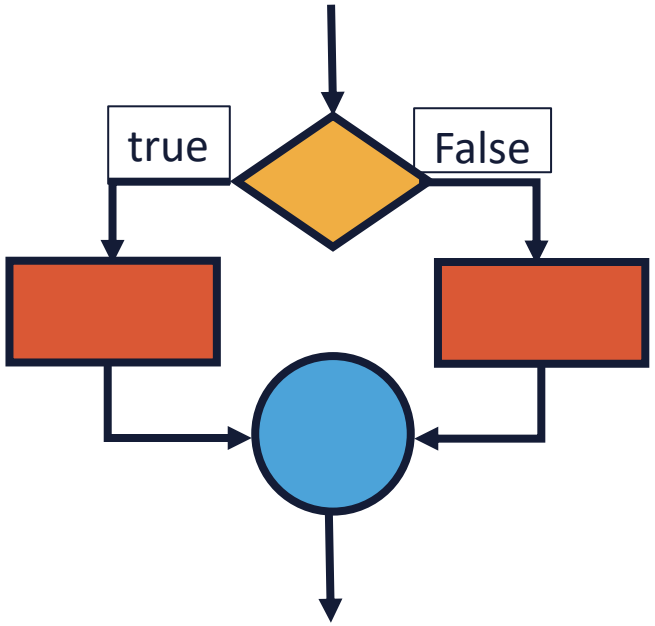
1. Asks for the price of a product
2. Changes that string into a float data type
3. Calculates the final price after adding TAX
4. Prints the final price

```
const TAX = 1.08
let moreProducts = true, total=0.0, productCost=0.0,
moreItems=false;
while (moreProducts == true) {
        productCost = prompt("Enter price of product: ");
        productCost = parseFloat(productCost);
        finalPrice = productCost * TAX;
        total = total + finalPrice;
        moreItems = confirm("Do you have more items?");
        if(moreItems == false){
                moreProducts = false;
        } else {
                moreProducts = true;
        }
}
printOut = "Total: " + total;
```

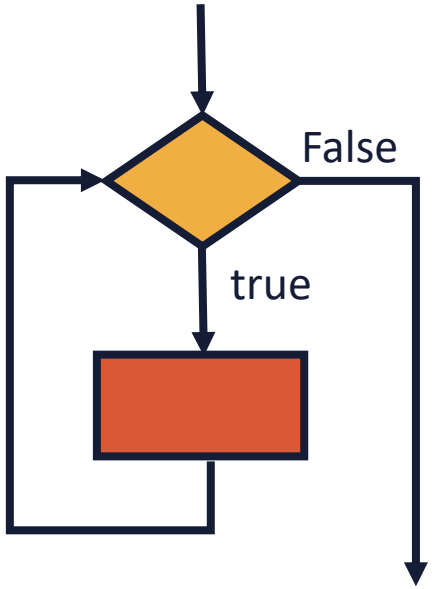
Only three programming structures



Sequence

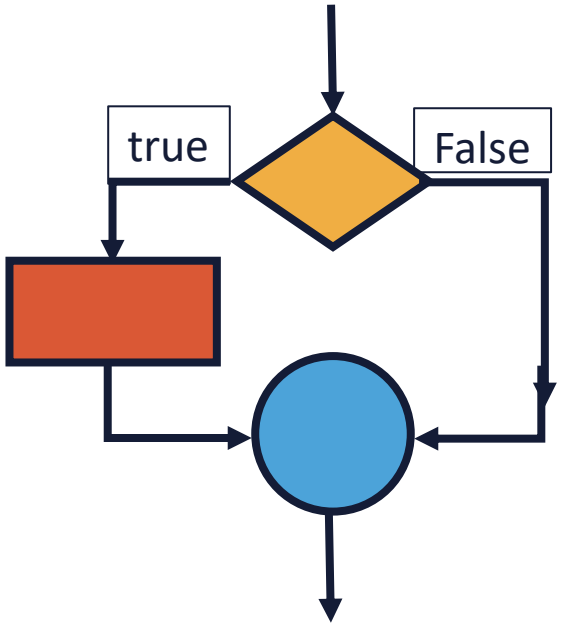


Decision/Selection



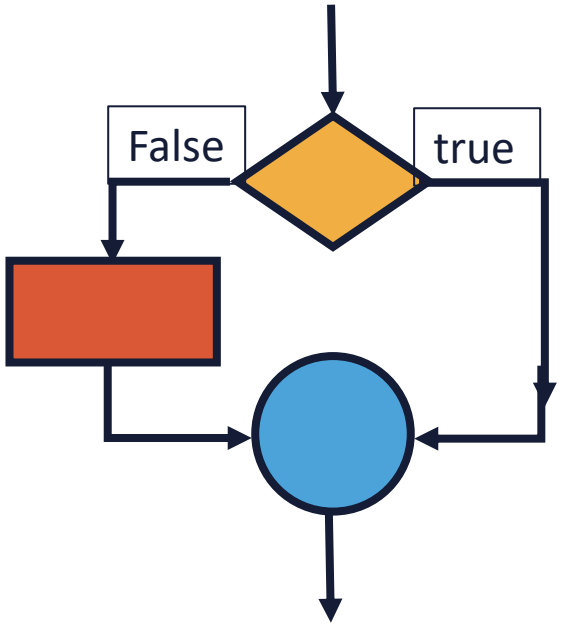
Iteration/Repetition

Only three programming structures



Decision/Selection

Only three programming structures



Decision/Selection

Shopping Cart

Main Program

```
const TAX = 1.08
let moreProducts = true, productCost=0.0,
finalPrice=0.0, total=0.0, moreItems=false;
while (moreProducts == true) {
  productCost = prompt("Enter price of product: ");
  productCost = parseFloat(productCost);
  finalPrice = productCost * TAX;
  total = total + finalPrice;
  moreItems = confirm("Do you have more items?");
    if(moreItems == false){
      moreProducts = false;
    } else {
      moreProducts = true;
    }
}
```

Shopping Cart

Main Program

```
const TAX = 1.08
let moreProducts = true, productCost=0.0,
finalPrice=0.0, total=0.0, moreItems=false;
while (moreProducts == true) {
 productCost = prompt("Enter price of product: ");
 productCost = parseFloat(productCost);
 finalPrice = productCost * TAX;
 total = total + finalPrice;
 moreItems = confirm("…more items?");
  if(moreItems == false){
    moreProducts = false;
  } else {
    moreProducts = true;
  }
}
```

Shopping Cart

Main Program

const TAX = 1.08	1.08
let moreProducts = true, productCost=0.0, finalPrice=0.0, total=0.0, moreItems=false;	
while (moreProducts == true) {	moreProducts = true
productCost = prompt("Enter price of product: ");	
productCost = parseFloat(productCost);	productCost = 100
finalPrice = productCost * TAX;	finalPrice = 108
total = total + finalPrice;	total = 108
moreItems = confirm(“…more items?");	moreItems = true
if(moreItems == false){	moreItems = true
moreProducts = false;	
} else {	
moreProducts = true;	moreProducts=true
} }	
printOut = "Total: " + total;	

Shopping Cart

Main Program

const TAX = 1.08	1.08	1.08
let moreProducts = true, productCost=0.0, finalPrice=0.0, total=0.0, moreItems=false;		
while (moreProducts == true) {	moreProducts = true	moreProducts = true
productCost = prompt("Enter price of product: ");		
productCost = parseFloat(productCost);	productCost = 100	productCost = 200
finalPrice = productCost * TAX;	finalPrice = 108	finalPrice = 216
total = total + finalPrice;	total = 108	total = 324
moreItems = confirm("…more items?");	moreItems = true	moreItems = false
if(moreItems == false){	moreItems = true	moreItems = false
moreProducts = false;		moreProducts = false
} else {		
moreProducts = true;	moreProducts=true	
} }		
printOut = "Total: " + total;		Total: 324

Shopping Cart

Main Program

const TAX = 1.08	1.08	1.08	1.08
let moreProducts = true, productCost=0.0,			
finalPrice=0.0, total=0.0, moreItems=false;			
while (moreProducts == true) {	moreProducts = true	moreProducts = true	moreProducts = true
productCost = prompt("Enter price of product: ");			
productCost = parseFloat(productCost);	productCost = 100	productCost = 200	productCost = 300
finalPrice = productCost * TAX;	finalPrice = 108	finalPrice = 216	finalPrice = 324
total = total + finalPrice;	total = 108	total = 324	total = 648
moreItems = confirm("…more items?");	moreItems = true	moreItems = **true**	moreItems = false
if(moreItems == false){	moreItems = true	moreItems = **true**	moreItems = false
moreProducts = false;		moreProducts = **true**	moreProducts=false
} else {			
moreProducts = true;	moreProducts=true	moreProducts=true	
} }			
printOut = "Total: " + total;			Total = 648